Attachment 3

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of Implementation of the Local Competition Provisions of the Telecommunications Act of 1996	))))))	CC Docket Nos. 96-98, 99-70

AFFIDAVIT OF MARK SHIPLEY AND DAVID RAUSCHENBERG

Witness Qualifications

1. My name is Mark Shipley. I am the Manager of Transport Services for Covad Communications Company. In this position, I am responsible for transport planning and for ordering and ensuring the provision of dedicated interoffice ("IOF") transport facilities from the incumbent LEC ("ILEC") and from other fiber CLEC providers for several Covad metropolitan areas, including the San Francisco Bay Area, Los Angeles, Sacramento, San Diego, Boston, New York, Washington DC, Dallas, Seattle, Miami, Denver, Chicago, Detroit, Philadelphia, Baltimore, Raleigh, Atlanta, Portland and Phoenix. Prior to holding this position, I worked as an Outside Plant Engineer for Pacific Bell, specializing in the design of DS1 and DS3 conditioned facilities, including both copper and fiber plant.

2. My name is David Rauschenberg. I am a Senior Engineer with Covad Communications Company. In this position, I am responsible for and have designed Covad's regional xDSL networks in Covad's local networks, including San Francisco, Boston, Chicago, Los Angeles, New York, Philadelphia, Seattle, Sacramento, San Diego, Dallas, Miami, Baltimore, and Atlanta. A critical part of this process is selecting the hub

(or switching) site location and planning the interoffice transport network architecture of the network in these metropolitan areas. As a result, Mr. Shipley and I often work together closely to find the best IOF transport options for Covad in Covad's regions. Prior to joining Covad, I was a network planner at AT&T. I designed the backbone to support AT&T's WorldNet service and helped develop tools to optimize network designs. I received a Ph.D. in Applied Mathematics from the University of Arizona.

Covad's Entry Strategy, Network Architecture and Need for IOF Transport

3. Covad has announced plans to build xDSL networks in twenty-two cities by the end of 1999. Covad's current local networks in the San Francisco Bay Area, Los Angeles, Sacramento, San Diego, Seattle, Chicago, New York Tri-State, Boston, Philadelphia, Baltimore and Washington DC regions currently pass over 11 million homes and businesses. Solely through the availability of physical collocation and unbundled dedicated transport, Covad has built these networks in a very short period of time—in general, less than one year for any one particular metropolitan region.

4. When Covad enters a market, it enters by using a "blanket" physical collocation strategy. Covad's business plan is to offer wide geographic coverage for our xDSL services so that our customers (principally Internet Service Providers who serve small businesses and residential users and large corporate customers with telecommuters) can purchase Covad's DSL services throughout the region. It is common for Covad to begin the entry process in a particular market by ordering physical collocation in sixty to seventy central offices. In each these offices, Covad collocates, Digital Subscriber Line Access Multiplexors ("DSLAMs"). In some of these offices, Covad also collocates data communications cross-connect, or switching, equipment. Offices that contain these data

switches are called "hubs". Covad's initial network design for a typical metropolitan network contains two to three such hubs.

5. To provide DSL services to the consumers served by an office where Covad has collocated its DSLAM, Covad must procure a high-capacity data circuit between that office and the nearest Covad hub. At a minimum, these connections must be at the DS3 level (45 Mbps). In the future, as Covad's DSL subscribership grows, OCx connections will be necessary. Covad also builds a monitoring network that runs parallel to the xDSL service network, in order to ensure the highest quality. To monitor status of the network, Covad also orders DS1s between its hubs and its central offices.

Importance of ILEC Dedicated Interoffice Transport to Covad

6. Incumbent LEC interoffice transport networks are ubiquitous. These networks—constructed with rights-of-way and oftentimes eminent domain authority granted during the period of monopoly status—connect *every* ILEC central office or serving wire center to one another in order to support telecommunications services.

7. It is hard to overstate the importance of this ubiquity and the competitive advantage that these ubiquitous interoffice transport networks give the incumbent LEC. The ability to connect *any* end user to *any other point* in the local network is a service that only incumbent LECs can provide—and it is the dedicated interoffice transport network that makes this service available. Although fiber CLECs have been growing, it is still very difficult for Covad to obtain interoffice ("IOF") facilities that do *not* utilize at least some portion of the ILEC interoffice transport network.

8. In designing a Covad area network, we select two to three sites which become "hubs"—the location of a data communications switch. In making this hub-site selection,

Covad examines the region in order to select sites that are: (a) centrally located, (b) contain space for collocation, and (c) which are hopefully served by multiple CLEC fiber rings. The availability of multiple CLEC fiber rings is important to Covad to permit it to have transport options, both for cost, reliability, and network redundancy. Once hub sites are selected, it is very difficult and expensive to re-engineer the network to move this hub elsewhere. Indeed, Covad has encountered certain instances in which it has had to undertake expensive and extensive network re-design solely because the ILEC did not provide hub site collocation arrangements in a timely manner.

9. Although searching for alternative CLEC fiber is part of our hub selection criteria, Covad is often unable to find suitable hubs that are served by multiple CLEC fiber rings. In general, not even 20% of the central offices in which Covad has sought collocation contain even *one* fiber CLEC. At most, only two fiber CLECs are generally present in the Covad hub locations, notwithstanding the fact that the presence of multiple providers is a factor in our hub site location decision.

10. Even if a fiber CLEC is present in a Covad hub office, that does not mean that the fiber CLEC will be able to provide Covad the requested point-to-point transport circuit. Most importantly, the fiber CLEC may not have fiber termination facilities in the ILEC central office that Covad needs to connect up to the hub. In our experience, the vast majority of Covad's needs for interoffice transport fall into this category. As a result, Covad still has to look to the ILEC to provide this circuit.

11. This circumstance is not surprising, because fiber CLEC networks are *not* generally designed to provide the interoffice transport that Covad needs. Fiber CLEC networks are designed to connect up customers to the fiber CLEC's switch and to

interconnect and exchange traffic at a few ILEC central offices. As a result, a fiber CLEC will typically collocate in at most 6-12 ILEC central offices in a metropolitan region that may contain over 100 ILEC central offices. Covad, however, must somehow connect *all* 100 of these offices *to one another*—a fundamentally different type of interoffice network architecture that only ILECs generally possess.

12. The CLEC industry has a way of differentiating between transport that a CLEC can provide fully "on-net" and those that it cannot. Type 1 transport is fully "on-net"—that is, the fiber CLEC can provide an end-to-end connection over its own fiber facilities. Type 1 transport can only be used for interoffice transport by Covad if the fiber CLEC is collocated in the relevant ILEC central office and at the point where Covad has established a hub. Type 2 transport may be a combination of "on-net" and ILEC facilities, which are sometimes called "Bell tails". In providing Type 2 transport, the fiber CLEC will utilize its fiber network, but will have to utilize some ILEC transport facility to complete the point-to-point connection. Thus, Type 2 transport *still depends* on the availability of ILEC transport and is therefore not a substitute for unbundled interoffice transport. Type 2 transport also is less-desirable for a company like Covad because the connection between the fiber CLEC and the ILEC introduces another point of complexity and potential point of failure. Utilizing Type 2 transport for an interoffice link may also result in a very long circuit, introducing unnecessary expense. As a result, there are significant differences in pricing, service quality guarantees, and installation intervals between Type 1 and Type 2 transport. The key point, however, is that Type 2 is not an "alternative" to the ILEC interoffice network at all—it is just a different form of purchasing transport capacity from the ILEC.

13. In summary, Covad does not purchase interoffice transport on a "metro market" basis but Covad instead requires dozens of particular point-to-point sites. The distinction is very important, because a true "alternative" to the ILEC for a particular circuit must be able to provide the specific point-to-point circuit that Covad needs.

Interoffice Transport Alternatives in Four Covad Markets

14. For purposes of this Affidavit, we have prepared detailed information on four Covad metropolitan markets. Our analysis vividly demonstrates the importance of unbundled dedicated transport to Covad and the fact that fiber CLECs cannot provide Covad with sufficient end-to-end Type 1 transport.

15. We have selected these four markets because they are served by different incumbent LECs and are commonly regarded as markets with significant fiber CLEC presence. Even so, this analysis demonstrates the importance of unbundled ILEC dedicated transport in these markets. In many markets, Covad has far fewer transport alternatives.

16. *San Francisco Bay Area.* In the San Francisco Bay Area, Covad is collocated in or plans to collocate in dozens of central offices. To the best of our knowledge, only a few fiber CLECs provide service to Covad's hub sites. As a result, Covad has an interoffice transport choice in only 18.3% of the offices it is collocating in. Less than 5.7% of Covad's total interoffice transport demand in the region can theoretically be served my more than one fiber CLEC.

17. *Chicago.* In the Chicago Area, Covad is collocated in or plans to collocate in dozens of central offices. To the best of our knowledge, only a few fiber CLECs provide service to Covad's hub sites. As a result, Covad has an interoffice transport choice in

only 13% of the offices it is collocating in. Only approximately 8.5% of Covad's total interoffice transport demand in the region can theoretically be served by more than one fiber CLEC.

18. *New York Tri-State Region.* In the New York Tri-State Region, Covad is collocated in or plans to collocate in dozens of central offices. To the best of our knowledge, only a few fiber CLECs provide service to Covad's hub sites. As a result, Covad has an interoffice transport choice in less than 16% of the offices it is collocating in. Less than 8% of Covad's total interoffice transport demand in the region can theoretically be served by more than one fiber CLEC.

19. *Baltimore/Washington DC Metro Area.* In the Baltimore/Washington DC region, Covad has collocated in or is collocating in dozens of central offices. To the best of our knowledge, only a few fiber CLECs provide service to Covad's hub sites. As a result, Covad has an interoffice transport choice in less than 18% of the offices it is collocating in. Only approximately 4% of Covad's total interoffice transport demand in the region can theoretically be served by more than one fiber CLEC.

20. The results are very consistent. Only a small fraction of Covad's demand for interoffice transport can theoretically be provided by more than one fiber CLEC. The following table summarizes our findings. In general, after analyzing Covad's alternatives in hundreds of offices, the number of offices where more than one fiber CLEC can theoretically provide Covad an interoffice transport alternative is very small, less than 7% in these four regions.

Table 1: Covad Interoffice Transport Options

Region	% Offices with One Fiber CLEC Alternative	% Offices with Two or More Fiber CLEC Alternatives	% Offices where ILEC is Only Transport Choice
San Francisco	18.4%	5.7%	81.7%
Chicago	13.1%	8.5%	86.8%
New York Tri-State	16.0%	8.0%	84.0%
Washington DC	17.6%	4.0%	82.4%
Total	16.2%	6.7%	83.8%

As a result, for the vast (almost 84%) majority of point-to-point (CO to hub) routes that Covad requires, there is *no* alternative to the ILEC interoffice network.

Comparison of UNE Dedicated Transport Rates and ILEC Special Access Tariffs

21. We have also examined the difference in pricing between UNE dedicated transport rates and ILEC special access tariffs. If Covad were unable to order dedicated interoffice transport as an unbundled network element, its only option in the approximately 84% of the offices listed above would be to acquire interoffice transport (at DS1 and DS3 levels) pursuant to existing ILEC special access tariffs.

22. Table 2 demonstrates that ILEC special access tariffs are oftentimes *considerably* higher than UNE dedicated transport rates. We have examined four metropolitan areas, served by four different RBOCs. We derived the access rates from LATTIS, an industry-wide pricing tool. Our analysis is based upon a sample interoffice transport link required by Covad in each of those regions, based upon a three-year term commitment.

Table 2: Comparison of UNE dedicated transport rates and ILEC Special Access

Region	RBOC	Miles	Capacity	Type	Fixed/Mth	Variable	Monthly Recurring Cost
SFO	Pac Bell	13	DS1	UNE	28.48	21.97	50.45
			DS1	Access	81.00	160.29	241.29
			DS3	UNE	308.17	444.86	753.03
			DS3	Access	$600.00	$533.00	$1133.00
SEA	U S WEST	11	DS1	UNE	41.72	9.24	50.96
			DS1	Access	98.88	140.47	239.35
			DS3	UNE	284.17	165.33	449.50
			DS3	Access	$315.00	$429.00	$744.00
NYC	BA North	14	DS1	UNE	110.00	10.08	120.08
			DS1	Access	56.00	235.20	291.20
			DS3	UNE	911.00	281.40	1192.40
			DS3	Access	$631.80	$2453.22	$3085.02
MIA	BellSouth	34	DS1	UNE	99.79	20.44	120.23
			DS1	Access	80.00	578.00	658.00
			DS3	UNE	1083.00	374.00	1457.00
			DS3	Access	$1540.00	$3604.00	$5144.00

Source: LATTIS, Covad Interconnection Agreements; Cross-Connect charges and NRCs not included

Key: SFO=San Francisco Bay Area SEA=Seattle NYC=New York City MIA=Miami

23. In addition to showing significant variation in ILEC transport rates, Table 2 shows that ILEC access rates can be considerably higher than unbundled transport rates. In the San Francisco Bay Area, PacBell's monthly access charge for a DS3 connection is more than 50% higher than unbundled dedicated DS3 transport. In New York City, Bell Atlantic's monthly DS3 tariff rate is 258% higher than the comparable UNE transport. In Miami, BellSouth's DS3 tariff rate is 353% higher than comparable UNE interoffice transport.

24. Those price differentials are quite significant. Given the number of point-to-point transport links that Covad purchases, these price differentials have a material impact on Covad's network design and planning.

25. Our analysis does not take into account several other basic considerations that the Commission should consider. Most importantly, we have not examined whether any of the CLECs that have fiber in any of the offices listed above could even provide Covad with our demand for interoffice transport facilities. The following section describes these and other considerations.

Other Considerations Related to Unbundled Dedicated Transport

26. Several additional issues are implicated by acquiring interoffice transport from fiber CLECs rather than the ILEC. The first are vendor-management costs. Since Covad already must orders loop and collocation from the ILEC, it has already spent and will spend considerable costs in establishing in-house ILEC-vendor support services for those ILECs, such as OSS and personal account management teams. Those assets can be efficiently leveraged to acquire interoffice transport from the ILEC as well. Requiring Covad to obtain transport from whatever fiber CLEC may be present in the market would require Covad to establish similar relationships and incur vendor-relationship start-up costs with perhaps multiple vendors.

27. In addition, not every fiber CLEC in a market may wish to sell Covad transport, for a variety of reasons. The fiber CLEC may compete with Covad in the xDSL services space, may wish to tie the sale of transport to collocation services, or may simply not have capacity on that fiber to provide Covad with the volume of transport Covad requires. Covad maintains good and solid relationships with its fiber CLEC colleagues, but the Commission should not presume that the presence of alternative CLEC fiber in an office means that there is an actual wholesale market for transport to or from that office.

28. The Commission's recent *Second Advanced Wireline Services Order* makes data CLECs like Covad even more dependent on ILEC transport. By making collocation easier and more efficient, Covad will increasingly obtain collocation arrangements in residential and rural ILEC central offices that might take years before any company strings competitive fiber to the office. In addition, by establishing a national rule permitting data CLECs to deploy advanced data switching equipment in ILEC central offices, Covad can now design their networks in a more robust, web-like fashion, rather than a star architecture, and perhaps even with overlapping service areas. As a result, Covad hubs can be scattered more throughout a metropolitan area and not be as tied to the availability of collocation space to a particular location served by CLEC fiber, and these hubs are now much more likely to be in an ILEC central office. Simple math leads one to conclude that with more hubs in total, and more of those hubs in ILEC offices, these hubs are more likely to be in offices where the ILEC is the *only* transport provider. Requiring Covad to obtain transport from whatever fiber CLEC may be present in the market might essentially force Covad to different hub sites that what it currently has in place. As described above, re-engineering networks to change hub locations involves considerable time and expense. Covad has designed its national entry strategy based on the universal availability of unbundled dedicated transport. The costs and delay of re-designing Covad's networks could be considerable.

29. Therefore, while fiber CLECs are growing, they have not deployed networks designed to provide fiber-less CLECs like Covad with interoffice transport and therefore can only supply a small fraction of the number of point-to-point links needed. The capacity of those fiber networks to support all supply currently provided by the ILEC has

not been established. The shocking differences between ILEC special access tariffs and UNE IOF pricing clearly demonstrates that these interoffice transport markets are not yet competitive.

DS3 Customer Links

30. In this proceeding, Covad has proposed that the Commission order that "DS3 Customer Links" be provided to requesting carriers on an unbundled basis. In our opinion, the availability of DS3 customer links from alternative sources of supply (fiber CLECs) is even more severely limited than with regard to interoffice transport.

31. DS3 links are dedicated, point-to-point digital circuits that provided bandwidth of 45 Mbps. Incumbent LECs commonly provide DS3 links to their own advanced services customers, including Internet Service Providers and other end-users of high-bandwidth services. In particular, an Internet Service Provider might order a DS3 link between its premises and the point-of-presence of another telecommunications carrier or major Internet POP. As the Internet grows and expands, the local bandwidth needs for ISPs and corporations will cause there to be an ever-increasing demand for DS3 circuits.

32. Covad can obtain DS3 customer links on an unbundled basis from the ILEC in some areas, including the State of New York. However, the availability of these links on an unbundled basis is not uniform nationwide, despite the fact that ILECs throughout the country provide ISPs and other large business customers with DS3s routinely and on a daily basis. Unbundling these links does not involve any proprietary issues, to our knowledge, and there is no technical feasibility issue in providing DS3 links from a customer premises to the Covad collocation node at the customer's serving wire center.

The only reason that we see as to why not all ILECs will provide these DSL links on an unbundled basis is because regulators have not required them to provide them as UNEs.

33. There are even more limited sources of supply for DS3 customer links than there are for interoffice dedicated transport. A fiber CLEC can only provide a Type 1 (*see* ¶ 12 above) DS3 circuit from a particular customer premises to the Covad network if the customer's building is "on-net". To date, only a few buildings in the country are served "on-net" by non-ILEC sources of supply. For all other buildings in the nation, the ILEC is the *only* option available to connect that customer to the closest Covad collocation node with a DS3 connection.

34. Covad typically acquires these links pursuant to ILEC special access tariffs—the price of which, however, are not cost-based, as UNEs must be. Table 2 demonstrates the extreme price difference between ILEC access tariffs and unbundled element (cost-based) pricing. The only other option for a CLEC like Covad for these links is to build its own fiber—the capabilities of which Covad does not possess, and which is a costly, time-consuming and expensive process that would delay that customer obtaining Covad service.

35. The availability of DS3 customer links is a significant competitive issue for Covad. When ILECs like Pacific Bell, Bell Atlantic, and US West provide ADSL service to ISPs, those ILEC ADSL federal tariffs include the availability of DS3 Links to those customer ISP. Covad directly competes against these providers in signing up ISPs to sell Covad's DSL service to end-users. There is currently a "race" between ISPs to provide DSL service to their customers and between data CLECs like Covad and ILECs to make those DSL services available to those ISPs. Because the ILEC networks are already

there, they can take advantage of their incumbent status and the economies of scale they possess in the providing these links to provide them to these customers without sharing those efficiencies with Covad as the unbundling rules require.

Conclusion

36. In summary, Covad currently remains dependent upon the ILECs to provide unbundled access to their interoffice transport networks and DS3 links to customer premises. Covad and similar CLECs must order hundreds of point-to-point interoffice transport connections, only a few of which can be served by other sources. For this affidavit, we have closely examined four of Covad's regional markets and have determined that the ILEC is the monopoly provider for nearly 84% of the dedicated transport links that we need to build our broadband xDSL networks in those four markets. Only a scattered few offices have many fiber CLECs that can theoretically provide Covad with an "on-net" transport alternative to the ILEC.

SUBSCRIBED AND SWORN:

Mark Shipley
Covad Communications Company
Santa Clara, CA

David Rauschenberg

David Rauschenberg
Covad Communications Company
Santa Clara, CA

Dated: May 24, 1999

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SUBSCRIBED AND SWORN:

Mark Shipley
Covad Communications Company
Santa Clara, CA

David Rauschenberg
Covad Communications Company
Santa Clara, CA

Dated: May 24, 1999

Attachment 4

BEFORE THE
NEW YORK PUBLIC SERVICE COMMISSION

PETITION OF NEW YORK TELEPHONE COMPANY FOR APPROVAL OF ITS STATEMENT OF GENERALLY AVAILABLE TERMS AND CONDITIONS PURSUANT TO SECTION 252 OF THE TELECOMMUNICATIONS ACT OF 1996; AND DRAFT FILING OF PETITION FOR INTERLATA ENTRY PURSUANT TO SECTION 271 OF THE TELECOMMUNICATIONS ACT OF 1996 TO PROVIDE IN-REGION, INTERLATA SERVICES IN THE STATE OF NEW YORK	:	Case 97-C-0271

AFFIDAVIT OF MICHAEL CLANCY
ON BEHALF OF COVAD COMMUNICATIONS COMPANY

1. My name is Michael Clancy, Vice President of for the New York Tri-State Region for Covad Communications Company. My business address is 48 South Service Road, Melville, New York 11747.
2. Prior to coming to Covad, I was employed by Bell Atlantic, in various Network Services, Special Services, and Engineering assignments, with increasing levels of responsibility, for over 27 years. My last assignment in Bell Atlantic was Director of Interoffice Facility Provisioning and Process Management.
3. The purpose of my testimony is to address the loop problems we have been having in New York and to address the loop testimony that Bell Atlantic – New York ("BA-NY" or "BA") presented in its April 13, 1999 filing. I also address the transport problems that Covad has been having in New York.

COVAD'S BUSINESS

4. Covad is a facilities-based competitive local exchange carrier offering high-speed, secure digital communication services between corporations and their employees working at home and between Internet Service Providers and their customers. Covad uses a variety of digital subscriber line ("DSL") technologies to provide a private, packet-based network connection that is secure and reliable. Covad has a blanket coverage strategy to provide DSL throughout the state of New York.

5. Utilizing standard copper unbundled loops, data packets are transported using DSL technology from the home or business to the central office. Covad aggregates traffic from each central office on its regional network through its hubs and then delivers the traffic to the corporate network or to the ISP network. Just last week, Covad announced its new residential DSL product which allows consumers to access the Internet through a secure, reliable, and fast connection of 384 or 768 kilobits per second.

DSL TECHNOLOGY

6. DSL is a transmission technology for sending digital signals over standard copper telephone lines. DSL can transmit a greater amount of information over local loops in a given period of time than analog or ISDN transmission technologies. DSL is the first commercially available, affordable technology that enables broadband speeds over standard telephone lines from the central office to the home, often called "the last mile." There are a number of different "flavors" of DSL technology including Asymmetric DSL ("ADSL"),

High bit rate DSL ("HDSL"), ISDN DSL ("IDSL"), Very high bit rate DSL ("VDSL") and Symmetrical DSL ("SDSL").

7. Although there are other significant differences in the various DSL "flavors," the main difference is bandwidth. The speed of DSL service can range from 144Kbps in each direction (IDSL), to 768 Kbps or 1.1Mbps in each direction (SDSL) or 1.5Mbps delivered to the teleworker and 384Kbps sent to the corporate network (ADSL). So, Covad's guaranteed service speeds range from slightly faster than the ISDN maximum to over 10 times the speed of ISDN. Typically, HDSL has been deployed to replace expensive T-1 lines in the business-to-business and business-to-Internet segment of the market. Covad uses ADSL and SDSL for the home-to-business and home-to-Internet segments depending on the enduser's requirements and IDSL is being used mainly where the local loop is incapable of supporting higher data rates but is electronically compatible with ISDN.

LOOPS

8. Thus far, Covad has been ordering ISDN loops or premium links from BA in New York. In its 271 filing, BA-NY claims that it has shown solid performance in the provisioning of loops. For premium loops, BA indicates that the volume remains low but the performance remains strong, noting that it has provided 227 premium loops over a five month period from October, 1998 through February, 1999 and completed 96% of these premium loop orders on time. According to Covad's records, during the period of time cited by BA, Covad

ordered approximately 359 premium loops. Of these 359 loops, BA supposedly provisioned 242 orders.

9. Since approximately November, 1998, Covad has ordered over 1,200 premium loops from BA-NY which is over four times the amount of loops that BA-NY analyzed for purposes of its 271 filing. From March until April 26, 1999 alone, Covad has ordered 883 premium loops. Covad's experience has not revealed overall solid performance by BA-NY. In sum, Covad has had recurring problems with loop installation and difficulty obtaining loops over 18,000 feet, copper facilities when there is Digital Loop Carrier ("DLC"), and DSL-capable loops, among other things.

<u>Loop Installation Problems</u>

10. If a loop has been successfully ordered, Covad receives a FOC date from BA. Covad automatically sets its installation date for seven days after the FOC date. This way, Covad can account for any possible delay or problem that may occur with the loop provisioning such as the need to repair a facility or to address any other outside plant issue. We inform our enduser of the Covad installation date so that he/she can be at home or at the place of business on the day of the installation.

11. At midnight, Pacific Standard Time, on the FOC date, Covad performs a loop test on the facility. If BA has missed a FOC date, the loop test will show that the loop has not yet been provisioned. If the loop has been provisioned, the test will indicate that the loop is leaving the central office and whether there is any deficiency in the loop. The loop test also gives us an estimate of the loop

length. The loop test will not, however, determine if BA has run the loop to the correct enduser's premises.

12. Covad's installation consists of running the inside wire at the customer premises and setting up the router or modem to make it ready for the customer to use Covad's service.

13. Covad has experienced various problems with BA on loop installation. For example, 50% of the 409 orders that were to be installed in the month of April were not ready for Covad to turn up. The installation problems Covad has encountered fall into four different categories:

- Loop could not be identified. When BA installs a loop for Covad, it needs to tag or otherwise identify the facility so that Covad's technicians know which loop to use to provide a customer's DSL service. In April, at least 28 of the 409 loops were not tagged.
- Loop never delivered. 97 of the 409 loops to be installed in the month of April were never dropped at the customer's premises. In other words, BA simply did not show up to install the loop or loop was not delivered to the NID that BA would normally do for a retail customer.
- Cross connect was not completed at the central office. BA failed to install the cross connect that connects Covad's equipment in the collocation site to the Main Distribution Frame. The affected loops failed the loop test on the FOC date. Covad's Order Administration department informed BA of this problem. 7 days after the FOC date, 9 of the 409 loops still failed due to no cross connects.

- Loop was faulty or defective. 67 of the 409 loops were inoperable and Covad has to open a trouble ticket to have the loop repaired or replaced.

14. On this last issue, BA does not have a clearly defined process for replacing defective pairs. Covad has gotten inoperable or defective loops from BA. There are a number of factors that can affect the operability of a loop: (1) a loop is poor quality; (2) a loop is crossed with another pair; or (3) a loop has other technical problems. BA does not have a coherent process to address faulty loops that Covad gets.

15. I know that BA has a definite process in place to deal with this issue in the retail environment. BA has program called Facility Management that is responsible for testing lines to see if they are working and if they are statused correctly. If a significant number of lines are defective, this process will try to identify the problem and determine whether it should be fixed. CLECs should get the same treatment.

16. I'll note that BA has not provided data on its performance on Covad's premium link orders. I would like to see this data for purposes of analyzing this problem further.

<u>Other Loop Issues</u>

17. Covad has had other problems with obtaining loops in New York. Covad -- as well as other CLECs desiring to offer customers high-speed DSL service -- needs clean, end-to-end copper unbundled loops from BA-NY. BA-NY's 271 filing has two paragraphs dedicated to "Availability of ADSL-Compatible Loops." The use of the term ADSL-compatible loops gives the impression

that DSL-capable loops are different or special facilities from unbundled loops used for voice service. In fact, they are nothing more than plain copper facilities. What I mean by a "clean" or "plain" copper loop is an unbundled loop that does not have encumbrances such as load coils or excess bridge taps that were placed on the loop so it could support voice service. The placement of these encumbrances on loops is called conditioning. Thus, in essence, Covad needs de-conditioned loops.

18. There are also other things such as the existence of digital loop carrier ("DLC") that limit the ability of a loop to transmit digital signals. I will address in more detail these encumbrances and the effect they have on digital transmission later in this testimony. Covad believes that provisioning of an unbundled loop includes removing encumbrances that BA-NY placed on the loop to support its analog service. A CLEC should be able to use any of the features, functions, and capabilities of an unbundled local loop in any manner to support any telecommunications service that it seeks to offer. This is regardless of whether BA–NY has itself chosen to take advantage of the full capabilities of its copper loop plant.

Loop Information

19. Covad, and other CLECs offering DSL service, needs detailed loop information so that it can make its own determination about whether a loop is capable of supporting IDSL or other DSL service. Indeed, BA, as owner and controller of outside plant that CLECs need, already has access to

information on its loop inventory which gives it a tremendous advantage over CLECs.

20. As mentioned above, Covad presently uses several DSL technologies to provide the customer with optimal speed and price options based on the capabilities of the underlying facility. It is essential, therefore, that Covad have efficient access to accurate electronic information about relevant operational parameters regarding BA-NY constructed and maintained loop facilities. The testing necessary to determine DSL capability can only be done by BA-NY and BA-NY should provide the testing data.

21. Covad needs information on loop length, the presence of analog load coils, presence and number of bridge taps, and the presence of a digital loop carrier ("DLC") (and the type of DLC) to be catalogued, inventoried, and made available directly to Covad through an automated database in the preorder stage of ordering a loop. The process of determining whether a loop can support DSL is called pre-qualification. Access to pre-qualification information at the preorder stage is a competitive necessity so that Covad can promise and then deliver the type of DSL service that a customer wants or needs. Obviously, Covad (and any other CLEC) should get automated access if BA-NY itself already has automated access to this information.

22. However, where automated access to this information is not in place, Covad believes that BA-NY should be required to provide automated access to this information.

Availability of DSL-Capable Loops

23. BA does not offer much in the way of commitments to make DSL-capable loops available to CLECs. I would first note that making DSL-capable loops available to CLECs is not a request for BA to perform special or unique outside plant activity. Loop conditioning is the routine maintenance and provisioning activities that are done to a facility to make it capable of transmitting *voice or data*. BA conditions loops on a regular basis for its own purposes to provide voice, ISDN, and DSL services -- to name a few services -- to its retail customers.

24. In BA's 271 filing, BA claims that it does not plan to condition loops for its own ADSL service but offers to provide DSL-loop conditioning to CLECs on a case-by-case basis. BA also promises to offer a conditioning product by April 30, 1999. BA proposes to exclude its performance on loop conditioning from performance measurements.

25. I am perplexed by BA-NY's statement that it is not planning to condition loops for its own ADSL service and that BA-NY characterizes loop conditioning as a "product". For one, BA should be required to make DSL-capable loops available to CLECs regardless of its own DSL market entry plans. New entrants should not have to wait for BA to decide when New York consumers should be able to get advanced telecommunications services.

26. Secondly, these statements give the impression that CLECs are demanding something extra or out of the ordinary from what BA does for itself. The activities that are needed to make a loop capable of providing DSL service are identical to that which is needed to make the loop capable of providing

ISDN service – a retail service that BA offers called "ISDN Anywhere" – as well as other BA retail offerings. BA's ISDN Anywhere service promises this type of digital service to almost anyone in its region. Given this fact, BA has already conditioned loops in its inventory in New York to provide ISDN Anywhere and, hence, made these same loops DSL-capable.

27. In any case, for the majority of loops, conditioning is not necessary for either analog or digital purposes. Most loops – approximately 75% -- can carry analog as well as digital transmissions. These loops are less than 18,000 feet in length and are simple, unaugmented ("nonloaded") twisted pairs of AWG 19, 22, 24, and/or 26 copper wire. (A non-loaded loop means it does not have load coils.) Other loops – the remaining 25% -- have different characteristics, depending on whether they must be conditioned to carry analog or digital signals. Therefore, about 25% of all loops are not an end-to-end pair of copper wires because they are served by digital loop carrier ("DLC") systems, or have load coils placed on them or have excess bridge taps. I'll note that these statistics are national. I am not aware of the specific breakdown for loops in New York.

28. Long copper loops, greater than 18,000 feet must be conditioned for voice service (POTS) by the placement of load coils to compensate for the attenuation of voice transmission. Load coils are devices that compensate for signal loss in the voice frequency that occurs with longer loops. The problem is that load coils were designed to condition a loop in order to solve a particular problem – boosting the signal strength of plain old telephone

service. Unfortunately, load coils block the higher frequencies used by digital data signals characteristic of DSL transmission technologies and must be removed in order to make them digitally capable. For example, when BA-NY provides ISDN service over long copper loops, under its ISDN Anywhere offering, it must de-condition the loop by removing the load coils necessary to support POTS and replace them with amplifiers designed to support ISDN. This is normal outside plant maintenance that BA performs for itself and exactly the kind of maintenance that Covad needs in order to provide DSL over long copper loops.

29. Another issue affecting the availability and price of DSL is the presence of bridge taps. Bridge taps are a consequence of an ILEC strategy to preserve options at the time a twisted copper pair was initially deployed from a central office. They are basically spurs off of the main route of the copper loop that allow BA to account for various configurations depending on where the end user is ultimately located. Bridge taps represent deployment options that were not utilized.

30. The presence of bridge taps cause significant reflection and attenuation impairments when signals encounter a bridged tap that is of resonant length. In addition, the more bridge taps that are present, and especially the presence of taps of resonant length, the more difficulty they cause to DSL service. The resulting interference may preclude DSL service over a twisted copper pair until the excess bridged taps are removed. Typically, DSL signals can work acceptably in the presence of a small amount of bridged taps; just

what amount can be tolerated varies among the different DSL technologies. Because bridged taps are so common in ILEC outside plant, DSL specifications typically state carefully exactly how many and how long bridged taps can be. Covad needs BA-NY to remove excess bridge taps in order to provide DSL over these affected loops.

31. BA has not consistently provided DSL-capable loops -- loops free of load coils and excessive bridge taps -- to Covad. BA's loop-by-loop approach to this issue only serves to delay and hinder Covad and other CLECs from providing DSL service in New York. Each time a loop is found to be encumbered by load coils or bridge taps, BA does not issue a FOC and the order sits in the queue in limbo. Covad has to chase each and every one of these affected orders to get resolution – a resolution that involves routine maintenance and provisioning activities that BA readily does for itself.

32. It is also troubling that BA excuses its behavior by explaining that there is no conditioning product yet available and that one will soon be offered to CLECs. Again, Covad does not need a new kind of loop or a different product. Covad wants and needs BA to perform routine maintenance and provisioning activities that it regularly does for itself.

33. Covad agrees with Sprint's concern about the level of charges that BA-NY may establish for DSL-conditioning. Given the fact that DSL-conditioning entails activities that bring a loop back to its original condition – clean and unloaded – Covad believes that no conditioning charge should be assessed on CLECs.

Digital Loop Carrier Systems

34. Currently, Covad has two options when faced with an order from a customer living in an area served by DLC: (1) Covad can obtain spare copper pairs that were augmented by installation of DLC or (2) should the DLC support ISDN, Covad is able to support IDSL (ISDN DSL) service, which has a maximum speed of 144 kbps.

35. Covad has had trouble getting copper facilities from BA for customers living in an area served by DLC. BA's position is that it is not required to guarantee all-copper facilities to Covad even if such facilities are readily available. BA has told Covad that this situation will be remedied when BA rolls out its ADSL-compatible loop. Again, Covad is not asking for a special loop or different product than that which exists now. Rather, Covad is requesting that BA assign a copper rather than fiber facility when a Covad enduser is served by DLC. This merely entails BA changing the cross wires in the central office and also possibly at the customer premises. BA also must change the facility assignment to Covad's circuit through its mechanized OSS inventory.

36. This issue has had a competitive impact on Covad. In one instance, two Covad enduser's lived in the same apartment complex. One of these endusers received a copper loop that enabled him to get higher speed DSL service from Covad. The other enduser was provisioned a loop on fiber. Covad requested that BA replace the fiber with copper using spare copper pairs. BA claimed that these spare pairs were defective. Covad suggested that BA use split pairs which would pull together two good copper wires from

the defective wires. BA refused, claiming that it never does this for itself. The enduser became so frustrated with the situation that he directly asked BA to provide him with a copper pair. BA promptly provided the copper facility.

37. I know from my experience at Bell Atlantic that BA uses spare copper pairs to serve their retail customers. I know also that BA allocates funds in its capital budget for rehabilitating and replacing copper in its network. In fact, I know that BA responded to a New York Commission proceeding on service quality by rehabilitating and replacing outside plant. The Commission should ensure that CLECs are treated the same.

38. The presence of DLC also affects the type of DSL service that Covad can provide. With ISDN-compatible line cards in the remote terminals, Covad would be limited to providing its lowest speed DSL to customers served by DLC. Covad supports the position of MCIWorldCom on gaining access to BA's remote terminals. Fortunately, next generation Digital Loop Carrier ("DLC") systems may be designed around remote DSLAMs that can support multiple DSL technologies. DSL equipment vendors are actively developing suitable digital line cards that may be inserted into these DLCs. As a result, a fiber-fed, next-generation DLC might be able to support *more* bandwidth than a simple, end-to-end copper loop, because the fiber-fed DLC shortens the copper loop length. Covad's interconnection agreement with BA-NY requires them to allow Covad to insert suitable digital line cards at these remote terminals.

39. The problem is that the deployment of these next-generation DLCs and DSL line cards is currently at the discretion of BA-NY. Therefore, it is essential that the Commission assure that BA-NY deploy this advanced technology as it becomes available and in a pro-competitive manner.

40. Covad proposes that the Commission require BA-NY to install upon request and where technically feasible the line card of Covad's (or any other CLEC's) choice. In this way, Covad's customers would not be limited to the technology that BA-NY has unilaterally chosen. This requirement does not require that BA-NY provide in any way a "superior" service than BA-NY currently provides itself. Indeed, the process of installing a suitable line card at a remote terminal is *precisely* the sort of work that BA performs at those terminals *every day* in providing ISDN, analog or even T-1/HDSL services. Simply applying this principle to next-generation DLCs and DSL line cards of the CLEC's choosing is, in Covad's opinion, the swiftest means of ensuring broadband deployment to these neighborhoods. Most importantly, this proposal is required by Covad's interconnection agreement with BA-NY.

41. In the alternative, CLECs should be able to collocate their DSLAM equipment at or around BA-NY's remote terminals. In this way, Covad could essentially avoid the limitations placed on loops by BA-NY's DLC systems. Covad would have the ability to connect up to the copper portion of loop that goes to the customer's premises and provide whatever speed service the enduser desires.

42. In addition, Covad believes that BA should be required to deploy remote DSLAMs capable of supporting more than one technology. To do otherwise, would deny end users the ability to obtain any DSL technology other than the one BA chooses to deploy in a one-technology-only remote DSLAM.

Long Copper Loops

43. Covad, like Northpoint, has been unable to get BA to provision loops in excess of 18,000 feet. In BA's 271 filing, it notes that the remedy to the long loop problem is for a CLEC to "obtain access to these non-qualified loops by requesting conditioning on an individual case basis or through the standardized loop conditioning offering, when available." In fact, BA has flatly refused to provide Covad with long loops.

44. In addition to the fact that long loops have load coils that impede DSL service, these loops cannot transmit digital signals without assistance. The longer the loop, the lower the speed of DSL that can be provided over a loop facility. This is because high frequencies used by DSL degrade over distance.

45. A transmission enhancing device called a repeater can assist the digital signal across the length of the loop. The current technology enables this to happen by either boosting the voltage of the signal or regenerating the transmission. Today, Pacific Bell is installing repeaters on long loops for Covad.

46. BA's position is that it is not required to provide long loops (loops with distance extensions/repeaters). BA has also told Covad that it would need to amend its interconnection contract in order to get loop extensions or repeaters placed on these long loops. And at least for long loops in Massachusetts, BA has proposed to charge Covad over $2,000 per loop for the repeater. I'll note that there is absolutely no distance limitation placed on the loops that Covad is entitled to under the contract or anywhere else.

47. There is no technical justification for refusing to provide Covad with long loops. As I mentioned above, the installation of a repeater remedies the distance problem. The use of repeaters is an industry norm. In fact, BA's technical references provide for the use of repeaters with long loops.

48. As I mentioned above, I know from my experience at BA that BA provides digital service to customers served by long loops. To provide its ISDN Anywhere service, BA has to install repeaters on long loops to reach customers "anywhere" – and they do so often times without charging their customers anything more for the repeaters. Also, I know that BA's technical references provide for repeaters. I also know that BA sometimes uses interoffice facilities to provide ISDN service for no extra charge. There is absolutely no reason that CLECs – BA's wholesale customers – should get anything less than what BA provides for its retail customers.

<u>Lack of Facilities</u>

49. Covad has been having problems getting loops installed where no facilities exist. In this situation, BA does not issue a FOC and has instructed Covad to cancel the order because there are no facilities. Covad has typically not canceled these orders and, instead, attempted to get BA to install facilities. But because the loop order does not have a firm order commitment date, the order simply sits in the BA order system and does not get action without Covad's escalation. Alternatively, BA unilaterally cancels the order. Covad has attempted to get a clear process for handling no facilities orders without success.

50. From my experience at BA, I know that BA has a specifically defined process for addressing no facilities issues for its retail customers. In the retail environment, if there are no facilities to fulfill a customer's order for service, the order gets routed to engineering as "held for cable." BA engineering has a commitment to place necessary cable, push or clear defective pairs to service this order within 30 days. BA issues a work order to get the facilities installed either by running a two pair wire to the customer premises or by installing multiple cable pairs to a particular area, "pushing" the appearance of pairs to an area, using pairs reserved for future use or clearing troubles from pairs statused as defective. It's my understanding that BA is required to report instances of "held for cable" and the relief plans for this situation to the New York Commission. This is to presumably ensure that BA does not neglect any of its retail customers. Covad, BA's wholesale customer, does not get like treatment.

TRANSPORT

51. As the testimony of John Fogarty mentions, the no-space collocation problems we have encountered in New York have negatively impacted our network design, costs, and ability to turn up service. In sum, Covad had to choose different, geographically inconvenient central offices to serve as its hubs that, in turn, caused us to build an inefficient network including excessive transport facilities. The first, obvious impact of no-space and new hub sites is that Covad had to delay turn up of service to its customers in

order to reconfigure its network including ordering augments for different collocation sites and ordering new and different transport facilities.

52. Secondly, Covad had to buy more transport than it would have needed, had it been able to use its originally-chosen hubs. The cost of transport is mileage sensitive. Because the New York hub sites were no longer located geographically near Covad's collocations, Covad had to purchase additional interoffice transport facilities ("IOF") to connect its collocations to its network. Covad also had to purchase additional digital transport facilities (DS-1s and DS-3s) that link its customers to the Covad network.

53. Another outgrowth of the no-space problem was the lack of transport facilities; BA simply could not deliver the needed transport and had to install new facilities to meet Covad's needs. Covad, in attempt to assist BA in planning for Covad's IOF demand, asked for cable assignments well before turnover of its cages. BA has not ever honored this request. This caused additional delay. Covad lost at least one customer because we could not meet the customer's expectations for service delivery.

54. Covad has also had problems with obtaining timely and operable interoffice transport facilities ("IOF") from BA-NY. BA routinely provided IOF circuits late and also refused to test these circuits before turning them over to Covad. When Covad attempted to turn up service in certain central offices, we discovered that IOF circuits were inoperable.

Cable Assignments

55. BA also mentions cable assignments, admits that it has delayed provisioning of these assignments but promises to institute changes that will improve this process. As I mentioned above, Covad too has experienced these delays. BA has refused to give cable assignments to Covad prior to cage turnover. Covad is unaware of any change in the cable assignment process and continues to get these assignments late.

56. I reserve the ability to supplement my testimony to address additional issues related to unbundled loops and DSL issues, as becomes necessary.

Michael Clancy (SM)

Michael Clancy
Vice President – Operations
New York Tri-State Region
Covad Communications Company

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